

METHOD AND SYSTEM FOR CONNECTING OF WIRELESS-INTERNET
USING DOMAIN BASED ON NUMERAL

TECHNICAL FIELD

5 The present invention relates to a system and method for connecting wireless internet using number-base domain.

BACKGROUND ART

 Among mobile communication services, the personal communication service is
10 a service that a user can perform voice and low speed data communication using small and light mobile terminal without being restricted to time and location.

 Subscribers of mobile communication service can communicate in any place, further can receive necessary information in the form of letter or voice.

 Generally, there are lots of web sites which are free or in charge for providing
15 information. A mobile terminal which can connect to those web sites were developed and widely used. The user used contents by connecting to persnet server or by inputting domain with mobile terminal in order to user service of the contents provider through the persnet server.

 The user connected to an internet site of contents provider using a mobile
20 terminal by inputting a phone number corresponding to the internet site. Otherwise,

the mobile terminal user inputs domain name using letter or number and the mobile terminal connects to the corresponding homepage through web-browser.

Referencing Fig. 1, if the user inputs number domain with mobile terminal, the user inputs number corresponding to letter in order. For example, if the user inputs
5 'game.co.kr' user inputs 4 once corresponding to g, inputs 2 twice corresponding to a, inputs 6 once corresponding to m, inputs 3 twice corresponding to c, inputs 2 three times corresponding to c, inputs 6 three times corresponding to o, inputs 5 twice corresponding to k, inputs 7 twice corresponding to r.

After inputting above mentioned numbers, the user selects execution button and
10 the mobile terminal is connected to the site game.co.kr.

In prior art, there were problems that many processes are needed to connect to the internet homepage.

Further, in case of connecting to internet homepage using a mobile terminal, there was inconvenience that user should input domain in letter.

15 Furthermore, in case of inputting number corresponding to letter, the user had to input number corresponding to letter many times.

Furthermore, as the user use contents in connection with the persnet server, the user could not use the contents unconnected to the persnet server.

The present invention is devised to solve the above-mentioned problems.

An object of the present invention is to provide a system and method for connecting wireless internet using number-base domain, which enables users to connect to internet homepage by inputting number domain without additional process.

5 Another object of the present invention is to provide a system and method for connecting to wireless internet, which enables users to connect to wireless internet by inputting simple composition of numbers without inputting letter domain of a homepage.

In order to achieve the above-mentioned objects, in accordance with one preferred embodiment of the present invention, there is provided with a method for
10 connecting to internet using a mobile terminal comprising the steps of (a) receiving an internet connection request signal from the mobile telephone; (b) determining if the received internet connection request signal is a number domain connection request signal and determining if the number domain exists in pre-stored number structure; (c) converting the number domain into a letter domain if the number domain exists in the
15 pre-stored number structure; (d)transmitting web site information corresponding to the converted number domain to the mobile terminal.

In accordance with preferred embodiment of the present invention, the number domain information may comprise at least one of a contents classification number, a first domain number and a second domain number, wherein the first domain number
20 may be the highest level domain and the second domain number may be a number

corresponding to a name of a site.

In accordance with another embodiment of the present invention, the number domain is a number corresponding to letter designated on a key pad of the mobile terminal.

5 In accordance with another embodiment of the present invention, the step (d) may transmit the website information in divided size corresponding to the size of LCD of the mobile terminal.

In accordance with another embodiment of the present invention, there is provided a method for connecting to internet using a mobile telephone comprising the
10 steps of, receiving an internet connection request signal from the mobile telephone; determining if the received internet connection request signal is a number domain connection request signal or a letter domain connection request signal; analyzing number structure of the number domain if the number domain connection request signal is received; determining if the analyzed number structure exists in pre-stored number
15 structure; converting the number domain into a letter domain if the analyzed number domain exists in the pre-stored number structure; and transmitting information of a site corresponding to the converted letter domain through a network.

In accordance with a preferred embodiment of the present invention, the format of the domain may include at least one of number, English letter, Korean letter,
20 composition of letter and number.

In accordance with a preferred embodiment of the present invention may further comprise the steps of receiving a number domain information corresponding to a letter domain of a site from an operator of the site; determining if a same number domain information exists in pre-stored number domain; and registering the received
5 number domain as a number domain of the site if a same number domain does not exists in pre-stored number domain.

In accordance with a preferred embodiment of the present invention, the present invention further comprise the step of registering at least one of the number domain or the letter domain corresponding to the site.

10 In accordance with another embodiment of the present invention, there may be provided a receiving an internet connection request signal and key data which includes number from a mobile terminal through a wireless network; converting the key data into a domain name using a predetermined regulation or a conversion table; routing so that a use connects to a site corresponding to the domain name.

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BRIEF DESCRIPTION OF THE DRAWINGS

The above objects and other advantages of the present invention will become more apparent in detailed descriptions of the preferred embodiments thereof with reference to the attached drawings, in which:

20 Fig. 1 illustrates a key pad of a mobile terminal;

Fig. 2 illustrates a schematic block diagram of the wireless internet connection system using number-base domain according to a preferred embodiment of the present invention;

Fig. 3 illustrates a flow chart of connecting wireless internet using number-base domain;

Fig. 4 illustrates a flow chart of receiving contents after connecting the internet according to a preferred embodiment of the present invention;

Fig. 5 illustrates a flow chart of registering homepage as number domain according to a preferred embodiment of the present invention;

Fig. 6 illustrates an example of initial connection screen according to a preferred embodiment of the present invention;

Fig. 7 illustrates an example of screen display of selecting internet connection according to a preferred embodiment of the present invention;

<The description of the reference characters of the major parts of the drawings>

100: mobile terminal

110: base station

120: IWF

130: converter

140: router

150: contents provision server

160: persnet server

THE BEST MODES FOR CARRYING OUT THE INVENTION

5 Hereinafter, preferred embodiments of the present invention will be described in more detail with reference to the accompanying drawings.

Fig. 2 illustrates a schematic block diagram of the wireless internet connection system using number-based domain according to a preferred embodiment of the present invention.

10 As shown in Fig. 2, the wireless internet connection system using number-based domain may comprise a mobile terminal 200a, 200b,, 200n(hereinafter will be named 200), a base station 210, an IWF (interworking function device) 220, a converter, a router 240, a contents provision server 250, and a persnet server 260.

15 The mobile terminal 200 transmits a number domain connection request signal including number domain information which a user inputted to the base station 210 and receives contents of a site corresponding to the number domain information included in the number domain connection request signal.

20 On connecting the internet using the mobile terminal 200, the domain information may be inputted by inputting number domain corresponding to a site or inputting letter domain.

The number domain connection request signal may comprise an identifier, a number domain code which user inputted and a user index for identifying user. According to an embodiment of the present invention, a user phone number may be used as a user index and other user identification means may be used as the user index.

5 The base station 210 receives the number domain connection request signal from the mobile terminal 200, transmits it to the IWF 200 and receives contents of the site from the IWF, transmits it to the mobile terminal 200.

Although it is not illustrated in Fig. 2, a mobile switching center may be included in the wireless internet connection system between the base station 210 and the
10 IWF 220. The number domain connection request signal is transmitted to the mobile switching center through a base station controller. If the mobile switching center receives the number domain connection system, the mobile switching center recognizes that it should be transmitted to the IWF 220 through the identifier and transmits it to the IWF 200.

15 The IWF has function of modem and PPP server, which enables users to transmit data only with the mobile terminal without wireless modem and keeps the connection between the mobile terminal and internet or computer network.

In other words, the IWF 220 transforms a mobile communication protocol into an internet protocol when signal is transmitted from mobile communication network to
20 internet and transforms an internet protocol into a mobile communication protocol when

signal is transmitted from internet to mobile communication network.

The converter 320 receives the number domain connection request signal from the mobile terminal 200 and determines if the signal is a number domain connection request signal or a letter domain connection request signal through the identifier of the
5 signal. If the received signal is the number domain connection request signal, the converter 230 analyzes the number structure of the number domain information and determines if the analyzed number structure exists.

If the number structure corresponding to the transmitted number domain exists, the converter 320 converts the number domain into a real domain(for example, English
10 or Korean letter domain) and transmits the converted domain to the router 240.

The number domain may comprise plurality of numbers, according to a preferred embodiment of the present invention, the number domain may comprise contents classification number, the first domain number and the second domain number.

The first domain number means a number corresponding to the highest domain
15 number which includes co.kr, net, org, com, ac.kr.

The second domain number means a number corresponding to a name of a site which includes game, chosun, etc.

The contents classification number is a number for classifying the kind of the site to be connected. For example, the contents classification number is 111 for game,
20 114 for traffic information, 1472 for news information and the contents classification

number is predetermined. The converter 230 searches a database in order to output the letter domain corresponding to the number domain. At this case, it is preferable for the database to store the number domain and the letter domain corresponding to the number domain based on the kind of the contents, which reduces database search time.

5 For example, if the number domain is 11142631, the converter classifies the 11142631 to 111,4263,1.

 111 is contents classification number corresponding to game related contents, 4263 is the second domain number corresponding to 'game'. The second domain number is the number corresponding to the name of the site which user requests to
10 connect using mobile terminal.

 Referencing Fig. 1, in case of 'game', 4 is pressed once for g, 2 is pressed once for a, 6 is pressed once for m and 3 is pressed three times for e, which means that the second domain number is a number corresponding to letter in mobile terminal. However according to another embodiment of the present invention, the second domain number
15 may be arbitrarily designated number by a service provider.

 1 which is the first domain number may be predetermined as 'co.kr'. In the same way, 2 may be predetermined as 'com' and 3 may be predetermined as 'net'. Otherwise, the first domain number may be number corresponding to English letter in mobile terminal.

20 In number domain, the number of bytes allocated to the each classification

number is predetermined.

In above mentioned number domain 11142631, 111 represents game related contents, 4263 represents 'game', 1 represents 'co.kr'. The converter searches game related field of the database through 111 and recognizes that 4263 and 1 represent
5 'game' and 'co.kr' respectively and converts 11142631 to 'game.co.kr'. The converter transmits the transformed domain to the router 240.

If the received domain from the mobile terminal 200 is a letter domain such as game.co.kr, the converter transmits the received domain information directly to the router 240. As mentioned above, the kind of domain is determined through the identifier
10 included in the signal.

The router 240 sets up the path so that the mobile terminal is connected to the converted domain by converter.

The contents provision server 250 provides various inter services. The contents provision server 250 provides various information to the mobile terminal.

15 The persnet server 260 is managed by mobile communication entrepreneur. The mobile communication user can receive various kind of services selectively through persnet server 260. More particularly, the persnet server 260 provides services such as internet surfing, chatting, email, mobile banking, electronic commerce, geographic service, news, stocks, weather, traffic information, job, record information, game, etc.

20 According to another preferred embodiment of the present invention, the

contents provision server 250 and the persnet server 260 may be implemented as one server and provide various kind of services to the mobile terminal 200.

According to another preferred embodiment of the present invention, the converter 230 and the router may be implemented as one device. For example, a router
5 which functions as router and converter together may be used.

At this case, the router receives the connection request signal from the mobile terminal and determines if the received signal is the number domain connection request signal or the letter domain connection request signal.

If the received signal from the mobile terminal is the number domain
10 connection request signal, router analyzes the number structure of the number domain information, converts the number domain into the letter domain corresponding to the analyzed number structure, and then connects the mobile terminal 200 to the converted domain.

In case the received domain is letter domain such as 'game.co.kr', the router
15 connects the mobile terminal 200 to the received domain.

Fig 3 illustrates a flow chart showing process of connecting wireless internet using number domain according to a preferred embodiment of the present invention,

Referencing Fig. 3, the converter receives an internet connection request signal from the mobile terminal S300.

20 The converter which received the internet connection request signal determines

if the received signal is number domain connection request signal or the letter domain connection request signal through the identifier of the signal S302.

If the received signal is the number domain connection request signal, the converter analyzes the number structure of the number domain and searches if a number
5 structure corresponding to the analyzed number structure exists S304.

If a number structure corresponding to the analyzed number structure exists, the converter converts the received number domain into a letter domain S308.

For example, if a user of the mobile terminal inputs domain information as '11142631', the inputted domain information is transmitted to the converter through the
10 base station and the IWF. The converter classifies received '11142631' into 111, 4263, 1. Then, the converter searches if a number structure corresponding to the analyzed 111, 4263, 1 exists in pre-stored domain information number structure.

If the analyzed number structure exists, the converter searches if the letter domain matching the analyzed number structure exists. If the matching letter domain is
15 'game.co.kr', the converter converts the number domain into 'game.co.kr' and transmits it to the router.

As mentioned in above example, the converter transmits the converted domain to the router S310.

When the number domain is converted to the letter domain, the number domain
20 classification structure is pre-stored in converter.

According to another embodiment of the present invention, the number domain may be an arbitrarily designated number (For example, '1111').

The converted letter domain matching the number domain is transmitted to the router by the converter. The router searches converted letter domain and sets up the path
5 in order to connect the mobile terminal to the domain.

By connecting the domain, the site information corresponding to the letter domain is transmitted and displayed in the mobile terminal.

If the inputted domain information by the mobile terminal user is the letter domain such as 'game.co.kr' S312, the domain information is transmitted to the router
10 through the base station, the IWF and the converter. The router searches if the received letter domain information exists S314.

If the site corresponding to the received letter domain exists, the site information is transmitted and displayed in the mobile terminal.

Fig. 4 illustrates a flow chart showing the process of connecting the internet and
15 receiving contents after connecting the internet according to another embodiment of the present invention.

Referencing Fig. 4, the mobile terminal receives the internet connection request information from the user S400. If the internet connection request is inputted from the user, domain input screen is displayed in the mobile terminal S402. A menu is provided
20 in the displayed screen so that the user can select number domain connection or the

letter domain connection.

The user selects at least one domain connection from the menu(S404). If the user selects number domain connection, the user inputs the number domain information of the site which the user wants to connect (For example, if the user wants to connect
5 chosun.com, the user inputs '1472' which represents news related contents, '246786' which represents the name of the site and '2' which represents com, therefore combined number domain is '14722467862') and the mobile terminal generates the number domain connection request signal and generated number domain connection request signal is transmitted to the converter through the IWF.

10 The converter analyzes the number structure of the received number domain and searches if the analyzed number structure exists in pre-stored number structure. If the analyzed number structure exists in pre-stored number structure, the router searches if the letter domain matching the number domain exists. If the letter domain matching the number domain exists, the converter converts the number domain into the letter
15 domain matching the number domain and transmits it to the router S410.

The router sets up the path in order for the mobile terminal to connect to the letter domain and by the path connects the mobile terminal to the received domain S412.

If the user of the mobile terminal selects letter domain, letter domain information (For example, 'chosun.com') is transmitted to the router S414.

20 The router searches transmitted domain and connects the mobile terminal to the

domain S416.

As mentioned above, the mobile terminal is connected to the domain which the user wants to connect, the homepage information corresponding to the domain is transmitted to the mobile terminal S418, and main screen of the site is displayed in the
5 mobile terminal S420.

The user selects necessary item in the displayed main screen S422. If the user selects an item, information corresponding to the item is displayed in the mobile terminal S424. The displayed information is transmitted in divided size corresponding to the size of the LCD display of the mobile terminal.

10 For example, the case that user of the mobile terminal connects the portal site 'naver.com' and selects computer item is explained. If the user selects the number domain, the user may input '1343628372' ('1343' represents portal site classification, '62837' represents naver which is number button corresponding to letter naver in
mobile terminal, 2 represents com). If the user selects the letter domain, the user inputs
15 n, a, v, e, r, ., c, o, m. If the mobile terminal is connected to the site, main screen including various items such as news, game, computer, health, etc is displayed.

In the displayed main screen, the user selects computer item. After selecting the computer item, if the user selects necessary item in displayed screen sequentially, selected information is transmitted to the mobile terminal.

20 The information is transmitted in divided size corresponding to the size of LCD,

because the LCD of the mobile terminal is small.

The method of dividing information to the size corresponding to the size of the mobile terminal LCD is explained below.

The line of the information which the mobile terminal user selected is analyzed
5 and each line is converted to the size that matches the size of the LCD screen and converted line is transmitted. The user may select necessary information using scroll key of the mobile terminal among the transmitted information.

According to another embodiment of the present invention, number domain may be series of numbers corresponding to letters of letter domain.

10 For example, 'ez-patent.co.kr' is converted to 210.107.46.101 in the internet, and the user may connect to the site 'ez-patent.co.kr' by inputting 210.107.46.101 or the user may connect to the site 'ez-patent.co.kr' by inputting 3 corresponding to e, 1 corresponding to z, 7 corresponding to p, 2 corresponding to a, 8 corresponding to t, 3 corresponding to e, 6 corresponding to n, 8 corresponding to t, 1 corresponding to co.kr.

15 Fig. 5 illustrates a flow chart showing process of registering number-base domain homepage according to a preferred embodiment of the present invention.

Referencing Fig. 5, an operator of homepage selects number registration mode of the homepage using mobile terminal or telephone in order to register number-domain homepage S500.

20 If the operator selects the registration mode, homepage registration number

input window is displayed and the operator inputs arbitrary number in displayed homepage registration number input window(S502).

For example, if the operator of the daum.net site would like to register the site as number domain, the operator selects the homepage number registration mode and
5 inputs arbitrary number domain in homepage registration number input window.

The number domain of daum.net, for example, may be 134332863. In 134332863, 1343 represents portal site, 3286h is number corresponding to daum, 3 represents net by the above mentioned number structure, or the number domain of daum.net may be 1234 which is arbitrarily determined number by the homepage
10 operator.

The converter which received the number domain searches if the same number domain exists in server S504. If the same number does not exist, the number domain inputted by the operator is registered as the number domain of the corresponding homepage.

15 For example, in case that daum.net is registered as 1234, a mobile terminal user selects domain input menu, and then press 1234 using number button and corresponding homepage is displayed.

If the same number as the number which the site operator inputted exists, step 502 proceeds again.

20 According to another embodiment of the present invention, the mobile terminal

user can store the domain by designating a particular number for preferred site. The user can connect the site using the designated number.

For example, a mobile terminal user preferring chosun.com site designate 1 for chisun.com and if the user would like to connect chosun.com, the user can connect the site by selecting 1 in internet connection mode.

Fig. 6 illustrates an example of initial connection screen according to a preferred embodiment of the present invention, and Fig. 7 illustrates an example of screen display of selecting internet connection according to a preferred embodiment of the present invention.

If a mobile terminal user selects menu for connecting internet, screen as Fig. 6 is displayed. If the user selects domain input menu shown in Fig. 6, a message that select a letter domain or a number domain is displayed in screen as shown in Fig. 7. The mobile terminal user selects at least one of a letter domain and a number domain.

If the mobile terminal user selects the letter domain, the user inputs letter domain of the site and selects execution button.

For example, in case the mobile terminal user would like to connect homepage of chuosunilbo, the user inputs chosun.com and selects execution button.

If the mobile terminal user selects the number domain, the input window for inputting number domain is displayed in the mobile terminal. The user inputs the number domain and selects execution button.

If the execution button is selected, the inputted number domain is transmitted to the converter through the IWF and the number structure is analyzed by the converter. The converter converts the number domain into the letter domain corresponding to the analyzed number structure. The user can connect to the homepage corresponding to the converted letter domain.

INDUSTRIAL APPLICABILITY

As mentioned above, according to the present invention, domain input process can be simpler when a user would like to connect to the internet homepage using mobile terminal as the use can connect to the homepage by inputting designated number domain corresponding to the letter domain without additional process.

Further, as the user connects to internet through the contents server, the user can utilize contents which are not provided in persnet server, which enables the user to contact more variable contents.

Furthermore, the process for connecting internet using mobile telephone can be more convenient by just inputting simple number domain.